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Notes:

1. Untranslatable words are replaced with asterisks (****).
2. Texts in the figures are not translated and shown as it is.

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CLAIM + DETAILED DESCRIPTION

[Claim(s)]

[Claim 1]In lusterless coated paper for gravure printings which provides a coating layer which makes paints and adhesives the main ingredients on stencil paper, [by containing a coherence spindle-shaped precipitated calcium carbonate light of 3.0-5.0 micrometers of mean particle sizes in secondary particle shape, and making said paints contain kaolin of 1.0-2.0 micrometers of mean particle sizes at 15 to 25weight % of a rate 75 to 85weight %] Lusterless coated paper for gravure printings making a blank paper degree of brilliancy into 20% or less by measurement according to a standard of JIS P8142.

[Claim 2]In a manufacturing method of lusterless coated paper for gravure printings which carries out gloss attachment finish of the water coating liquid which makes paints and adhesives the main ingredients on stencil paper after drying and providing a coating layer, a coating and, A coherence spindle-shaped precipitated calcium carbonate light of 3.0-5.0 micrometers of mean particle sizes in secondary particle shape to said paints 75 to 85 weight %, [by making kaolin of 1.0-2.0 micrometers of mean particle sizes contain at 15 to 25weight % of a rate, and performing gloss attachment by super calender or a soft calendar] A manufacturing method of lusterless coated paper for gravure printings making a blank paper degree of brilliancy into 20% or less by measurement according to a standard of JIS P8142.

[Detailed Description of the Invention]

[0001]

[Field of the Invention]Especially this invention has 20% or less of blank paper degree of brilliancy needed in order to brew the high-class feeling which lusterless coated paper has in a limited minute area like stamps, and relates to the lusterless coated paper for gravure printings which excelled [generating / of the missing dot] in halftone dot reproducibility few, and its

manufacturing method.

[0002]

[Description of the Prior Art] Since the feature of gravure printing can change the thickness of ink and can express the shade of a picture by changing the depth of the crevice of a version side, its width of gradation sequence is wide, and the reproducibility applied to intermediate color from a highlight part is excellent, and it is in the place which can print a beautiful photograph. Therefore, expansion use is carried out increasingly in many fields recent years increasingly.

[0003] As compared with the gross tone coated paper which a blank paper degree of brilliancy is high, and has high printing gloss from before, [lusterless coated paper] It is decent, and in order to brew a deep tone, a high-class feeling is strong and is one of covers, such as various books and a magazine, a high-class poster, a catalog, a calendar, and the application converted papers with high general-purpose value that come to be further used for stamps broadly. In the stamps especially using lusterless coated paper, also in order to demonstrate the effect which lusterless coated paper has in a limited small area to the maximum extent, 20% or less of the degree of low gloss still severer than before is called for.

[0004] The principle of gravure printing is a method to which paper is made to transfer the ink with printing pressure directly, after filling up with ink the portion into which the version side was dented. Therefore, since it is easy to spoil the reproducibility of a missing dot or a halftone dot, the paper quality demanded [compressibility / smooth nature] is severe.

[0005] Lusterless coated paper is generally manufactured by two kinds of methods. The paints whose particle size is coarser than the paints (it is usually 0.1-2.0 micrometers at a mean particle size) for which one of them is used with usual gross tone coated paper (usually) The coating constituent which blended 0.4-10.0 micrometers so much by the mean particle size is produced commercially as it is on the stencil paper surface, without carrying out smoothing finish with a calender etc. after an application and dryness, or it is producing commercially by performing slight calender processing. Other one is a manufacturing method which carried out the surface roughening process of the surface of a calendar and which processes coated paper with a high linear pressure comparatively with what is called a matte roll, and is finished. These processings tended to reduce the smooth nature of space remarkably, and problems, such as causing the increase in a missing dot and the aggravation of halftone dot reproducibility which were mentioned above as a result, have produced them.

[0006] For the purpose of canceling this fault, conventionally, [JP,H06-73698,A] Although the coating and the manufacturing method of lusterless lightweight coated paper for gravure printings in which it will dry and a blank paper degree of brilliancy will be 40% or less are indicated, [the glazing coating liquid which contains 50 or more copies of lime stone powder of 0.5-3.0 micrometers of particle diameter in stencil paper for predetermined lower coating

coating liquid after a coating] If it is going to stop a blank paper degree of brilliancy low to 20% or less, the satisfying quality cannot say easily the coated paper which must blend more lime stone powder, and serves as the tendency for a missing dot to get worse as the result, and also is obtained [transition / to the blank paper side of ink].

[0007]The coherence precipitated calcium carbonate light of the secondary particle shape where a mean particle size is not less than 1.3 micrometers at JP,H08-27694,A, and the loadings of the lime stone powder whose mean particle size is not less than 2.0 micrometers are 50 to 90 weight sections to paints 100 weight section, Although the manufacturing method of the lusterless coated paper for gravure printings which makes a blank paper degree of brilliancy 40% or less by setting the rate of a compounding ratio of a coherence precipitated calcium carbonate light and lime stone powder to 1:1-1:8 is indicated, This method must also blend many coarse lime stone powder of particle diameter, in order to stop a blank paper degree of brilliancy low to 20% or less, and it tends to cause problems, such as a missing dot and transition of ink. [as well as as a result the above]

[0008]Thus, the blank paper degree of brilliancy obtained with the art developed until now was a thing of 40% or less of level with almost all art. In the stamps said to be the smallest work of art, In order to brew the touch which the depth which the lusterless coated paper which the design original author imagined in the small printing surface product very much has, and which was fallen and attached has, the blank paper degree of brilliancy of the above-mentioned level is insufficient, and also 20% or less of blank paper degree of brilliancy which stopped the degree of brilliancy is needed, but. It was difficult to obtain the lusterless coated paper for gravure printings which is 20% or less of blank paper degree of brilliancy, and excelled [dot / missing] in printing aptitude, such as halftone dot reproducibility, few with old art.

[0009]

[Problem to be solved by the invention]This invention relates to the lusterless coated paper for gravure printings, and its manufacturing method.

It has 20% or less of blank paper degree of brilliancy needed in order that especially the purpose may brew the high-class feeling which lusterless coated paper has in a limited minute area like stamps, and which was fallen and attached, And generating of a missing dot is providing lusterless coated paper for gravure printings which was excellent in halftone dot reproducibility few, and a manufacturing method for the same.

[0010]

[Means for solving problem]this invention person has 20% or less of blank paper degree of brilliancy needed in order to brew the high-class feeling which lusterless coated paper has in a limited minute area like stamps, And the result of having repeated research wholeheartedly about lusterless coated paper for gravure printings which excelled [generating / of the missing

dot] in halftone dot reproducibility few, and a manufacturing method for the same, [the application liquid which blended the kaolin which has a precipitated calcium carbonate light which has the shape of a spindle shape which has a specific mean particle size and was suitable for low gloss, and a specific mean particle size at a specific quantity of a rate, respectively] [after an application and dryness] [by carrying out calender processing] Lusterless coated paper for gravure printings it becomes possible whose to satisfy the above-mentioned character, and a manufacturing method for the same are found out, and it came to complete this invention.

[0011][namely the lusterless coated paper for gravure printings of this invention] In the lusterless coated paper for gravure printings which provides the coating layer which makes paints and adhesives the main ingredients on stencil paper, [by containing the coherence spindle-shaped precipitated calcium carbonate light of 3.0-5.0 micrometers of mean particle sizes in secondary particle shape, and making said paints contain kaolin of 1.0-2.0 micrometers of mean particle sizes at 15 to 25weight % of a rate 75 to 85weight %] It is characterized by making a blank paper degree of brilliancy into 20% or less by measurement according to the standard of JIS P8142.

[0012][the manufacturing method of the lusterless coated paper for gravure printings of this invention] In the manufacturing method of the lusterless coated paper for gravure printings which carries out gloss attachment finish of the water coating liquid which makes paints and adhesives the main ingredients on stencil paper after drying and providing a coating layer, a coating and, The coherence spindle-shaped precipitated calcium carbonate light of 3.0-5.0 micrometers of mean particle sizes in secondary particle shape to said paints 75 to 85 weight %, It is characterized by making a blank paper degree of brilliancy into 20% or less by measurement according to the standard of JIS P8142 by making kaolin of 1.0-2.0 micrometers of mean particle sizes contain at 15 to 25weight % of a rate, and performing gloss attachment by the super calender or a soft calendar.

[0013]

[Mode for carrying out the invention]Although the stencil paper in particular used by this invention is not limited, it is suitably used in the range about 50 - 100 g/m² as an amount of tsubos of stencil paper, for example. The pulp used when milling stencil paper can use the pulp of bleaching either mechanical pulp, such as the chemical pulp obtained by the KP method which uses vegetable fiber, such as wood and cotton, as materials, or the SP method, GP, TMP, CTMP, CGP, and SCP, or pulp etc., choosing it suitably. It is not limited in particular for a paper making method, and paper making is carried out by the neutral paper making method performed in the usual paper making method, for example, the acid paper making method which the paper making PH performs in the 4.5 neighborhoods, or the PH7.0 neighborhood. A paper machine can also use the paper machine of either a Fourdrinier

machine, a cylinder machine, the combination machine of a long network and cylinder mould, the paper machine that equipped the twin wire or a Yankee machine, choosing it suitably.

[0014]**** currently generally used in the paper manufacture industry as paper-making **** blended with paper-making stencil paper with pulp is used. For example, talc, lime stone powder, a precipitated calcium carbonate light, clay, a titanium dioxide, etc. are illustrated.

[0015]Into stencil paper, medicine, such as various kinds of yield improvement agents currently generally used, a paper durability improvement agent, an internal sizing agent, a pitch controller, or an antifoaming agent, can be suitably used in the range which spoils neither a pulp fiber nor the purpose effect of this invention other than ****.

[0016][at least one side of the stencil paper for coatings produced by carrying out the lusterless coated paper for gravure printings of this invention in this way] All the paints contain [the coherence spindle-shaped precipitated calcium carbonate light of 3.0-5.0 micrometers of mean particle sizes] 75 to 85weight % in secondary particle shape, And since kaolin of 1.0-2.0 micrometers of mean particle sizes coats the coating constituent which all the paints contained 15 to 25weight % and gloss attachment by the super calender or a soft calendar is performed, Generating of the missing dot serves as lusterless coated paper for gravure printings with 20% or less of very low blank paper degree of brilliancy which was excellent in halftone dot reproducibility few.

[0017]Here, [the coherence precipitated calcium carbonate light in the lusterless coated paper for gravure printings of this invention] That secondary particle shape is spindle-shaped has the big feature, in the cubic shape or the needlelike precipitated calcium carbonate light generally used, a blank paper degree of brilliancy cannot rise and a blank paper degree of brilliancy suitable for especially manufacture of stamps cannot obtain 20% or less of lusterless coated paper. Especially the loadings have 75 to 85weight % of the preferred range of all the paints, and at less than 75 weight %, 20% or less of low gloss is not obtained, and if 85 weight % is exceeded, coating liquid viscosity will rise, and while affecting workability, deterioration of printing quality will be caused.

[0018]

[Working example]An embodiment is given to below and the effect of this invention is concretely explained to it. Of course, this invention is not limited to the embodiment of *****. In the following embodiments and comparative examples, each appraisal method of a blank paper degree of brilliancy, a missing dot, and halftone dot reproducibility is as being shown below.

[0019]The blank paper degree of brilliancy was measured according to the standard of JIS P8142. A missing dot and halftone dot reproducibility are printing pressure 50 kg/cm and press speed the conditions for /of 45 m by the Printing Bureau type gravure printing testing machine (made by Kumagaya Riki Kogyo), The printed matter printed using the gravure printing ink

whose ink viscosity measured with the Zahn cup method is 11 seconds was evaluated with viewing and an enlargement, and it judged in the four following steps. the judging standard in that case -- O: -- especially outstanding **: O: outstanding -- it was based on each a little inferior standard of ** x: inferior.

[0020](Embodiment 1) LBKP90% which freeness (csf) ****(ed) so that both might be set to 500 ml, After adding talc (above) (made by Japanese talc company) 10% to pulp slurry 100% which consists of NBKP10%, to it, 1.5% of aluminum sulfate and 1.0% of a sizing agent were added, and **** was prepared to it. Paper making of this **** was carried out with the Fourdrinier machine, and the stencil paper for coatings of amount of tsubos 65 g/m² was obtained.

[0021]As paints, in secondary particle shape, 80% of a coherence spindle-shaped precipitated calcium carbonate light (made by a Shiraishi industrial company) of 4.0 micrometers of mean particle sizes, Kaolin (made in Engelhardt) of 1.5 micrometers of mean particle sizes 20% is used, 0.5 copy of polyacrylic acid soda (Aaron T: made by Toagosei) is added as a dispersing agent per 100 copies of paints, Water was added, 0.5 copy of alginic acid soda was added after distribution and also as a thickener, 15 copies of styrene butadiene copolymer latex (LX407G9: made by Nippon Zeon) was added as adhesives, and it mixed so that solid content concentration might be 60%, and paints slurry of about 60% of solid content concentration was prepared.

[0022]Said coating liquid was coated and dried on one side so that the amount of one side coatings of stencil paper might become 15 g/m² using high-speed blade KOTA for research.

[0023]It finished up with a linear pressure of 100kg/cm, a super calender (made by Kumagaya Riki Kogyo) using obtained coated paper for laboratories.

[0024](Embodiment 2) Except a mean particle size blending a coherence spindle-shaped precipitated calcium carbonate light (made by a Shiraishi industrial company) which is 3.0 micrometers 80% in secondary particle shape as coating paints, it was made the same as Embodiment 1, lusterless coated paper for gravure printings was obtained, and the quality evaluation was performed.

[0025](Embodiment 3) Except a mean particle size blending a coherence spindle-shaped precipitated calcium carbonate light (made by a Shiraishi industrial company) which is 5.0 micrometers 75% in secondary particle shape as coating paints, it was made the same as Embodiment 1, lusterless coated paper for gravure printings was obtained, and the quality evaluation was performed.

[0026](Embodiment 4) Except a mean particle size blending kaolin (made in Engelhardt) which is 1.0 micrometer 15% as coating paints, it was made the same as Embodiment 1, lusterless coated paper for gravure printings was obtained, and the quality evaluation was performed.

[0027](Embodiment 5) Except a mean particle size blending kaolin (made in Engelhardt) which

is 2.0 micrometers 20% as coating paints, it was made the same as Embodiment 1, lusterless coated paper for gravure printings was obtained, and the quality evaluation was performed.

[0028](Comparative example 1) Except a mean particle size blending a coherence spindle-shaped precipitated calcium carbonate light (made by a Shiraishi industrial company) which is 1.0 micrometer 80% in secondary particle shape as coating paints, it was made the same as Embodiment 1, lusterless coated paper for gravure printings was obtained, and the quality evaluation was performed.

[0029](Comparative example 2) Except a mean particle size blending a coherence spindle-shaped precipitated calcium carbonate light (made by a Shiraishi industrial company) which is 6.0 micrometers 80% in secondary particle shape as coating paints, it was made the same as Embodiment 1, lusterless coated paper for gravure printings was obtained, and the quality evaluation was performed.

[0030](Comparative example 3) Except a mean particle size blending kaolin (made in Engelhardt) which is 4.0 micrometers 20% as coating paints, it was made the same as Embodiment 1, lusterless coated paper for gravure printings was obtained, and the quality evaluation was performed.

[0031](Comparative example 4) As coating paints, a mean particle size the coherence spindle-shaped precipitated calcium carbonate light (made by a Shiraishi industrial company) which is 4.0 micrometers in secondary particle shape 20%, kaolin (made in Engelhardt) of 1.5 micrometers of mean particle sizes 80% -- except blending, it was made the same as Embodiment 1, the lusterless coated paper for gravure printings was obtained, and the quality evaluation was performed.

[0032]The evaluation result of the lusterless coated paper for gravure printings created by the above-mentioned Embodiments 1-5 and the comparative examples 1-4 and its printed matter was as being shown in Table 1.

[0033]

[Table 1]

		実験例				比較例			
		1	2	3	4	5	1	2	3
無	無質荷重カルシウム 配合率(%)	80	80	75	85	80	80	80	80
無	カオリン 配合率(%)	20	20	25	15	20	20	20	20
無	無質荷重カルシウム 平均粒子径	4.0	3.0	6.0	4.0	4.0	1.0	6.0	4.0
無	カオリン 平均粒子径	1.5	1.5	1.5	1.0	1.0	1.0	1.0	1.5
無	白紙光沢度 (%)	17.3	10.6	16.6	16.5	18.5	42.5	18.1	21.4
無	ミッシングドット	○	○	○	○	○	○	×	△
無	网点再現性	○	○	○	○	○	△	×	△

[0034]As for the lusterless coated paper for the gravure printings produced in Embodiments 1-5, and its printed matter, a missing dot and halftone dot reproducibility excel [degree of brilliancy / blank paper] the result of the above-mentioned table in 20% or less. However, even if a blank paper degree of brilliancy is 20% or less, a missing dot and halftone dot reproducibility come to be inferior [if the mean particle size of a coherence spindle-shaped

precipitated calcium carbonate light or kaolin and the range specified by combination are exceeded, a blank paper degree of brilliancy will exceed 20%, or].

[0035]

[Effect of the Invention]It has 20% or less of blank paper degree of brilliancy needed in order to brew the high-class feeling which lusterless coated paper has in a limited minute area like especially stamps by this invention, and the lusterless coated paper for gravure printings which excelled [generating / of the missing dot] in halftone dot reproducibility few was able to be obtained.

[Translation done.]